REMARKS

35 USC § 112

Claims 34, 35 and 36 were rejected under 35 USC §112 first paragraph. Claims 35 and 36 have been cancelled without prejudice or disclaimer to any patentable subject matter therein solely to expedite prosecution of this application. Claim 34 has been amended to overcome the 35 USC § 112 rejection.

35 USC § 102(b)

Claims 1-5, 12, 14, 15, 18, 19, 21, 23-37 were rejected under 35 USC §102(b) as being anticipated by Schnute US Patent No. 6,239,142. Claims 1 and 37 have been amended to overcome this rejection.

35 USC § 103

Claims 1-16 and 18-37 were rejected under 35 USC §103(a) as being obvious over Schnute, U.S. Patent No. 6,239,142. This rejection is respectfully transversed with respect to the amended claims.

The Examiner states that Schnute generically discloses an anti-herpesviral 4-oxo-4, 7-dihydrothienopyridine carboxamide compound. Applicants contend that the generic compound described by Schnute at column 1, line 50, to column 3, line 57, does not describe the compounds claimed in claim 1, as amended, of the present application. In particular, the claimed compounds differ from the generic compounds of Schnute at the R^4 substituent of the application compared to the R^3 substituent of Schnute.

The generic structures and disclosures of Schnute do not suggest that the R^4 substituents described and claimed in the present invention were contemplated by Schnute. Schnute has no generic teaching to suggest the substitution pattern of R^3 that would render the claims of the present application obvious.

Additionally, the compounds of the claimed invention are more potent than the compounds disclosed by Schnute. The table at column 28, lines 10-65, of Schnute, shows the potency of Schnute's compounds. The table on page 27 of the specification shows the potency of the compounds of the application. It is apparent that the compounds of the application are more potent than the compounds of Schnute.

In addition, the compounds of the present application, when substituted on the phenyl of R^4 are generally more potent that the unsubstituted phenyl, in the same position, of Schnute. In Schnute examples 39 and 40, have an IC_{50} of .31 micromolar. In contrast, examples 6 and 10-13 have activity ranges with an IC_{50} of .06 to .34 micromolar, having equal to 5 times greater potency.

Applicants contend that their results show the unexpected benefit of substituting on the phenyl ring of R^4 .

Double Patenting

Claims 1-16 and 18-37 were rejected under the judicial created doctrine of obviousness-type double patenting over claims 1-21 and 23-32 of U.S. Patent No. 6,239,142 , "the '142 patent" (Schnute). This rejection is respectfully transversed. The independent claims of the 142 patent are 1 and 2, the remaining claims are dependent upon either 1 or 2 or both. The claims of the instant application differ from claim 1 of the '142 patent by having a different substituents at the R^2 and R^3 positions of the '142 patent compared to the R^2 and R^3 substituents of the '142 patent. Claim 2 of the '142 patent is different in that the R^3 substituent does not have the substituted phenyl moiety that is claimed in the current application. Applicants contend that the claims of the present application are patentably distinct and non-obvious over the claims of the '142 patent for the reasons given above. Therefore, applicant respectfully requests that the double patenting rejection be withdrawn.

Claims 1-43 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over copending Application No. 10/649,301 in view of Schnute. Applicants will file a terminal disclaimer when over the 10/649,301 application when the application is ready to be granted as a patent.

Claims 1-37 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over co pending Application No.10/649208 in view of Schnute. Applicants will file a terminal disclaimer when over the 10/649,301 application when the application is ready to be granted as a patent.

Applicants' undersigned attorney may be reached by telephone at (858) 622-8060. All correspondence should continue to be directed to our address given below. The Commissioner is hereby authorized to charge all fees due, or credit any overpayment, to Deposit Account Number 500329. If any fee not submitted herewith is required for the filing or consideration of this amendment, including a fee for any necessary extension of time, please charge all such required fees to Deposit Account No. 500329.

Respectfully submitted,

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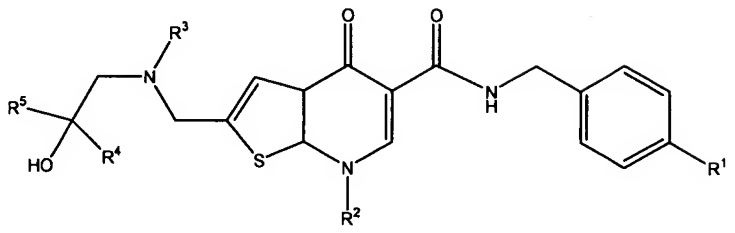
Karl O. Neidert
Attorney For Applicant
Registration No. 39,313

Agouron Pharmaceuticals, Inc.
A Pfizer Company
Legal Division, Patent Department
10777 Science Center Drive
San Diego, California 92121
Phone: 858/622-8060
Fax: 858/678-8233

Claims marked to show the changes made thereto

1. (Amended) A compound of formula I



I

its enantiomers , diastereomeric or tauteromeric isomers, or a pharmaceutically acceptable salt wherein,

R^1 is

(a) Cl

(b) Br

(c) F, or

(d) CN;

R^2 is

(a) C_{1-4} alkyl optionally substituted by one or more OH or C_{1-4} alkoxy, or

(b) $(CH_2)_mOCH_3CH_2OH$;

R^3 is C_{1-2} alkyl;

R^4 is phenyl optionally fused to a benzene or pyridine ring, and ~~optionally~~ substituted with one or more R^6;

R^5 is

(a) H, or

(b) C_{1-2} alkyl optionally substituted by OH;

R^6 is

(a) halo,

(b) OCF_3,

(c) cyano,

(d) nitro,

(e) $CONR^7R^8$,

(f) NR^7R^8,

(g) C_{1-7} alkyl which is optionally partially unsaturated and optionally substituted by one or more R^9,

(h) $O(CH_2CH_2O)_nR^{10}$,

~~(i) OR^{10}~~

(j) CO_2R^{10},

(k) phenyl optionally substituted by halo, C_{1-7} alkyl or C_{1-7} alkoxy,

~~(l) SR^{10}~~

(m) imidazolyl,

(n) $S(O)_mNR^7R^8$,

(o) $NHC(=O)R^{10}$, or

(p) any two adjacent R^6 substituents taken together constitute a group of the formula – $O(CH_2)_mO$-, -$(NH)(CO)(CH_2)_jO$-, or –$(CH_2)_i$-;

R^7 and R^8 are independently

(a) H,

(b) phenyl optionally substituted by halo, C_{1-7} alkyl or C_{1-7} alkoxy,

(c) C_{1-7} alkyl which is optionally substituted by one or more OR^{10}, phenyl, or halo substituents

(d) C_{3-8} cycloalkyl,

(e) $(C=O)R^{11}$,

(f) R^7 and R^8 together with the nitrogen to which they attach form a het, wherein het is a five- (5), or six- (6) membered heterocycle ring having one (1), two (2), or three (3) heteroatoms selected from the group consisting of oxygen, sulfur or nitrogen, wherein het is optionally substituted with C_{1-4} alkyl;

R^9 is

(g) oxo,

(h) phenyl optionally substituted by halo, C_{1-7} alkyl or C_{1-7} alkoxy,

(i) OR^{10},

(j) $O(CH_2CH_2)OR^{10}$,

(k) SR^{10},

(l) NR^7R^8,

(m) halo

(n) CO_2R^{10},

(o) $CONR^{10}R^{10}$, or

(p) C_{3-8} cycloalkyl optionally substituted by OR^{10};

R^{10} is

(a) H,

(b) C_{1-7} alkyl

(c) C_{3-8} cycloalkyl or

(d) phenyl optionally substituted by halo, C_{1-7} alkyl or C_{1-7} alkoxy

R^{11} is

(d) C_{1-7} alkyl

(e) C_{3-8} cycloalkyl, or

(f) phenyl optionally substituted by halo, C_{1-7} alkyl or C_{1-7} alkoxy;

i is 3 or 4
j is 0 or 1
n is 1, 2, 3, 4, or 5 and
each m is independently 1 or 2.

34. (Amended) A method of treating atherosclerosis and restenosis, mediated by herpesviral infection, comprising administrating to a mammal in need thereof a therapeutic amount of a compound of claims 1 or 2.

37. (Amended) A compound of claim 1 which is

~~(1) N-(4-chlorobenzyl)-2-((((2S)-2-hydroxy-2-(4-hydroxyphenyl)ethyl)(methyl)-amino)methyl)-7-methyl -4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,~~

~~(2) N-(4-chlorobenzyl)-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,~~

(3) N-(4-Chlorobenzyl)-7-(2,3-dihydroxypropyl)-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)amino)methyl)-4-oxo-4,7dihydrothieno[2,3-b]pyridine-5-carboxamide,

(4) N-(4-chlorobenzyl)-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)amino)methyl)-7-(3-hydroxypropyl)-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(5) N-(4-Chlorobenzyl)-7-(2-hydroxyethyl)-2-((((2S)-2-hydroxy-2-phenylethyl)-(methyl)amino)methyl)-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(6) N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-(3-methoxyphenyl)ethyl)(methyl)-amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

~~(7) N-(4-Chlorobenzyl)-7-ethyl-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)-amino)methyl)-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,~~

(8) N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)amino)methyl)-4-oxo-7-propyl-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(9) N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-phenylethyl)(methyl)amino)methyl)-7-(2-methoxyethyl)-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(10) N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-(4-cyanophenyl)ethyl)(methyl)-amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(11) N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-(3-cyanophenyl)ethyl)(methyl)-amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(12)N-(4-Chlorobenzyl)-2-((((2S)-2-(4-(dimethylamino)phenyl)-2-hydroxyethyl)-(methyl)amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(13)N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-(4-(hydroxymethyl)phenyl)ethyl)-(methyl)amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide,

(14)N-(4-Chlorobenzyl)-2-((((2S)-2-hydroxy-2-(4-nitrophenyl)ethyl)(methyl)-amino)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-b]pyridine-5-carboxamide, or a pharmaceutically acceptable salt thereof.